

A NEW GENUS AND SPECIES OF *ALEURODIDÆ*.

BY ALBERT C. F. MORGAN, F.L.S.

I received from Mr. Douglas some leaves of *Anona muricata*, forwarded by Mr. Jenman, Superintendent of the Botanic Garden at George Town, Demerara, which were abundantly covered on the under-side with a white, silky, flocculent substance. In the midst of this material were to be seen some insects with four snowy-white wings, and it was thought that these might prove to be the *Aleyrodes** *cocois* described by Curtis (Gard. Chron., 1846, p. 284). Subsequently, Mr. Douglas sent me some leaves of *Richardia pacifica*, also from Demerara, besides some leaves of the coffee-plant from the same locality, both of which were much covered with a white flocculent substance, similar to that on the *Anona muricata*.

Examining first the coffee-plant leaves, I found a difficulty in dissolving the flocculent matter, which would not subject itself, or at least but imperfectly, to the action either of alcohol or heat. Embedded in this substance I found a mandibulated insect, with four wings and six legs, the tarsus with one dentate claw and two digitules, body pilose. I apprehend that this insect, probably a *Hemerobius*, was predaceous on the original inhabitant of the secreted substance. Besides this insect there was buried in the white flocculent material one of the *Coccinellidæ* (black), which family is well known to be predaceous on *Coccidæ*, but I could not find any Homopterous insect, which probably had already been devoured by its enemies. On the *Richardia*, however, I found an insect similar to that mentioned above as found on the *Anona*, and besides this, somewhat to my surprise, I found two male winged species of *Coccidæ*, obviously of the *Diaspina* group, but in the absence of the female I am unable to determine the species. I have since received from the same source some leaves of the cocoa-nut palm, on which I find an insect similar to that on the *Anona* and *Richardia*, but very much smaller, in fact, about half the size, and it is upon these two species, both the larger and the smaller, that I propose to offer a few observations.

Réaumur (Mém. tom., ii, vii, pl. 25) describes the life-history of an insect on the cabbage, which Prof. Westwood considers to be *Aleyrodes chelidonii*, and of which the larvæ and pupæ are said to be devoured by a Coleopterous larva belonging to the *Coccinellidæ*.

* Burmeister (Handb. d. Entomol., ii, p. 82 [1835]) says :—"Latreille's Orthographie *Aleyrodes* muss in *Aleyrodes* verwandelt werden."—J. W. D.

Réaumur's figures, however, are not very specialized in detail, and although his account of the life-history of the insect is very interesting, yet his description of the insect itself is not sufficiently characterized to enable us to identify with precision the species which he describes. We must, therefore, refer to more modern writers for assistance in the determination of the species under consideration. Westwood (Int. Class. Ins., ii, p. 443), describes only one species of one genus, viz., *Aleyrodes chelidoniæ*, and he mentions that the wings have only one strong central nerve, pointing out that Burmeister is incorrect on this point in his figure (1 andb. d. Ent., ii [i], Taf. ii, fig. 7). I note that both of these authors mention the species as having antennæ of six joints, and Burmeister (*ib.*, p. 82) describes the 2nd joint as very long, 3rd, 4th, and 5th equal. Curtis (*op. cit.*) describes his species, *A. cocois*, as having 7-jointed antennæ, of which the 2nd is the longest. Now, in both of the species under consideration, it is the 3rd joint which is the longest, and which is, as Burmeister described his 2nd, *very* long. I should suppose that both Burmeister and Westwood did not count the basal joint when describing the antennæ as 6-jointed, and then in that case the 2nd joint would really be the 3rd. But Curtis, while describing the antennæ as 7-jointed, still says that the 2nd is the longest, so that, as he obviously did not count the basal joint, the antennæ of his species would really have had eight articulations.* I have experienced considerable difficulty with the antennæ of the dried specimens sent to me, for they were nearly all broken, and it was only in one or two instances that I was able to preserve the antennæ in a complete state. They appear to me to consist of seven joints, of which, undoubtedly, the 3rd is much the longest.

With reference to *Aleyrodes cocois*, Curtis says (*l. c.*):—

“There is a little white mealy fly, which sometimes infests the cabbages, and an allied species has been sent from the West Indies, which differs from it in its structure and economy. * * * On carefully examining the leaves of the cocoonut it is evident there are two distinct insects upon the under-surface, an *Aleyrodes* and a *Coccus*. They adhere to the under-side of the leaf, and are surrounded by a white cottony or resinous powder; both sexes of the *Aleyrodes* at rest, and with their wings closed, are exhibited of their natural size on a portion of the leaf (fig. 1), and also some oval animals producing the white powder in abundance from the margins of the sides, and these I suppose are the larval state of the *Aleyrodes*. There are also numbers of white linear cases, as shown at fig. 5, which I consider to be the pupa of a male *Coccus*; indeed, I found one of the perfect insects sticking

* *c. f.*, Ent. Mo. Mag., xxiv, p. 265, for a summary of various authors' statements of the number of joints in the antennæ of *Aleyrodes*.—J. W. D.

to the surface. At fig. 2, I have represented the under-side of one on the leaves: it is oval, concave, ochreous, and shining, with six minute legs and ventral rings, like a female *Coccus*, but I could not detect any proboscis or antennæ. I must observe, however, that the objects had all suffered from extreme pressure and great heat, and it is not unusual for the proboscis to be broken off in removing such animals from the surface on which they are feeding."

It will be observed from the above quotation that Curtis found a male *Coccid* in company with the *Aleyrodes* from the West Indies, and it will be seen from what I have said that I also found male *Coccids* in company with *Aleurodicus* on *Richardia* from Demerara.

I have now come to the conclusion, with which I think Mr. Douglas concurs, that the smaller of the two species which he sent me, that is, the one found on the cocoa-nut, is the same as the *Aleyrodes cocois* of Curtis, and the larger species found on *Anona* and *Richardia* is new.

Now, as the neuration of the wings, and the structure of the genital organs of the male, are different from any species of the genus *Aleyrodes*, and as we have two species before us both possessing these same characteristics, it is thought better to establish a new genus to include these two species, and Mr. Douglas has suggested the name *Aleurodicus*, which I propose to adopt.

I should mention that Curtis (*l. c.*), with reference to his species, says:—

"The winged specimens are larger than any of our British *Aleyrodes*, and from the neuration of the wings being different, as well as from the remarkable anal forceps of the male, this insect might with great propriety be separated from the genus *Aleyrodes*." Signoret (*Ann. de la Soc. Ent. de France*, 4 série, Tome viii, p. 399 [1868]), quoting Curtis, also says:—"Ainsi il semble bien positif que c'est un *Aleyrodes*, qui paraît extraordinaire et se distingue de toutes les autres espèces par l'innervation des élytres."

The larva of both the species presents some very interesting features. Four large, compound, funnel-shaped, glandular organs (fig. 10) on each side of the abdomen of the insect exude rods of a white silky flocculent substance, and towards the posterior margin four other smaller and more simply constructed glands secrete a similar substance, which does not, however, take the form of rods, and this substance is also exuded from the entire margin of the insect, from the marginal tubular glands (fig. 12). There are also numbers of small cœcal glands on the disc on the body, which also, I think, exude a white flocculent substance, so that the insect in its larval state presents an appearance something as shown in fig. 1.

ALEURODICUS, Doug., *n. g.** (Pl. i).ALEURODICUS ANONÆ, *n. sp.*

Larva. Oval, depressed, ochreous. Longest diameter, 1.25 mm. Antennæ apparently only 2-jointed, the 2nd long and annulated. Legs short, stout, tarsus with one claw only. Four lateral, infundibuliform, compound spinnerets on each side, and posterior to these, two more simply constructed and smaller secreting glands on each side, also one on each side anterior to the first pair of legs. Labium one-jointed, prolonged. Labrum quadrilateral. Mandibular organs short, with the maxillary setæ long and fine (fig. 2). Anus large, with long framework of colon easily distinguishable.

♂ and ♀ adult. Length, 2.25 mm. Antennæ long, 7-jointed; basal joint short; 2nd, longer; 3rd, very long; 4th and 5th, sub-equal; 6th and 7th, shorter. Legs long; the posterior pair considerably longer than the others. Tarsus 2-jointed; in the posterior pair of legs the first joint of the tarsus is the longest, in the others equal. Two claws. Tibia and tarsus pinnate. One stout spine at junction of coxa with trochanter. Several small, stout spines at junction of tibia and tarsus. Head inserted. Mesonotum chitinous, well developed. Scutellum, a pair of pyriform plates. Wings white, ample, broad; anterior, incumbent, length, 3 mm.; posterior, length, 2 mm. (fig. 3); strong central nervure bifurcated near the apex; branch nervure proceeding from near the base of the central nervure. Genital organs of female bivalvular, and between the valves is situated the ovipositor (fig. 7). In the male the valvular organs are modified in the form of a forceps, between which lies the penis (fig. 4). On the last segment of both sexes are two external processes.

Habitat: *Anona muricata* and *Richardia pacifica*, Demerara.

ALEURODICUS COCOIS.

Aleurodes cocois, Curt., Gard. Chron., 1846, p. 284; Signoret (Ann. de la Soc. Ent. de France, 4 série, Tome viii, p. 399 [1868]).

This having been described by Curtis, and translated into French by Signoret (*l. c.*), it is unnecessary to give a further description, but I should mention that the only difference I see between it and *Aleurodicus anonæ*, described above, is in the smaller size and the more diaphanous wings of the imago. This insect only measures 1.5 mm., and the thorax is not so chitinous and well developed as that of the *A. anonæ*, although the structure is the same.

Habitat: cocoa-nut palm only, Demerara.

I have only to add that Mr. McIntire kindly copied the description of *A. cocois* from Gard. Chron., and Mr. Douglas sent me Signoret's observations, for I had neither of the works necessary at my disposal.

* *Aleurodicus*:—Characters in general as in *Aleurodes*; differs in having the median nervure of all the wings strongly bifurcate at the apex, instead of being simple; in the structure of the male genitalia, and in the characteristics of the larva, as stated.—J. W. D.

